

CLAIMS

1. A sputtering target monitoring system comprising:
a sputtering source in a vacuum chamber;
a power supply;
a sensor box connected to the sputtering source and the power supply, the sensor box including a current-based arcing sensing device;
a data collection box connected to the sensor box; and
a network connected to the data collection box.
2. The sputtering target monitoring system recited in claim 1, wherein the sensor box further comprises a voltage circuit, a current circuit and the current-based arcing sensing device.
3. The sputtering target monitoring system recited in claim 2, wherein the data collection box further comprises software for collecting and displaying data collected from the sputtering source.
4. The sputtering target monitoring system recited in claim 3, wherein the data collection occurs according to a voltage sensed in the voltage circuit exceeding a threshold voltage value in the sputtering source.
5. The sputtering target monitoring system recited in claim 4, wherein arcing events correspond to current spikes sensed in the sputtering source beyond a threshold current value.
6. The sputtering target monitoring system recited in claim 4, wherein arcing events correspond to current interruptions sensed in the sputtering source.

7. The sputtering target monitoring system recited in claim 1, wherein the network is directly linked to the sputter monitoring system.

8. The sputtering target monitoring system recited in claim 1, wherein the network is remotely linked to the monitoring system.

9. The sputtering target monitoring system recited in claim 1, wherein the data collection box provides real time display of data collected.

10. The sputtering target monitoring system recited in claim 9, wherein the real time display is at least one of a table format and a graphical format.

11. A method of monitoring a sputtering process comprising:

providing a monitoring system comprising a sputtering source in a vacuum chamber, the sputtering source being connected to a power supply and a sensor box in the vacuum chamber, and the sensor box including a current-based arcing sensing device;

providing a real time data collection box connected to the sensor box, and a network connected to the data collection box, the data collection box recording and displaying collected data pertaining to the sputtering source;

inputting threshold values to the monitoring system;

starting the sputtering process;

measuring voltage values in the sputtering source during each cycle of the sputtering process to determine when initiation of data collection occurs during each cycle;

measuring current values in the sputtering source during the sputtering process and comparing the measured current values to corresponding threshold values to determine when arcing occurs in each cycle; and

indicating the status of the sputtering process based on the real time data collected.

12. The method recited in claim 11, further comprising displaying the measured results to monitor the conditions during the sputtering process in at least one of a table format and a graphical format.

13. The method of claim 11, further comprising determining the life of the target based on a number of kW hours the sputtering source has undergone.

14. The method of claim 11, wherein indicating the status of the sputtering process comprises notifying an operator of conditions during the sputtering process by at least one of alarms, messaging, lighting, and paging.

15. The method of claim 14, wherein the monitoring system is operable by a direct on-site computer or remotely by a network link.